Correct Cabling and Bracing in Honey Locust to Protect Weak Crotches and Brittle Wood

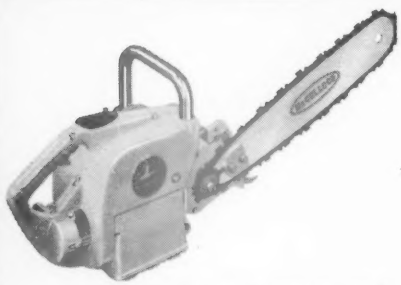
32nd National Shade Tree Conference – Aug. 20-24 – Royal York Hotel, Toronto, Canada

An Introduction to Tree-Ring Analysis — ***Nathan A. Bowers***

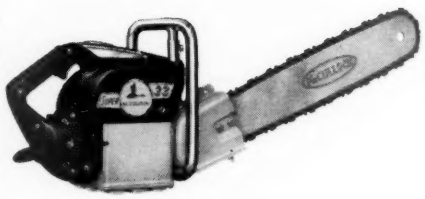
Consider The Trees — ***Paul E. Tilford***

May-June, 1956 *The Journal of American Arboriculture* Vol. 16. No. 4

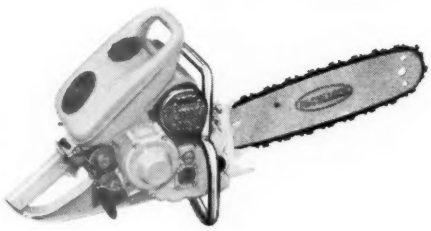
Only McCulloch offers complete choice of size, power, weight, and price, *plus* first-class service through a nation-wide chain of factory-authorized dealers



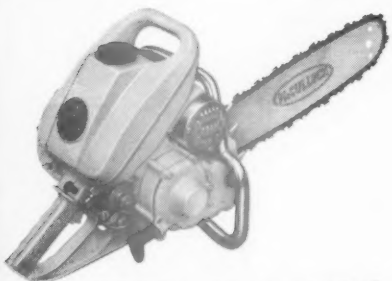
MODEL 33B, lightest in weight (20 lb complete), lowest in price. Blades available up to 26 inches.



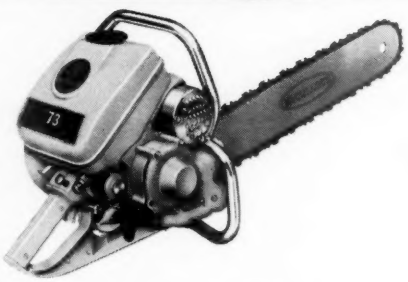
SUPER 33, fastest cutting of all saws in its weight and price class. Packed with power and speed. Blades up to 26 inches.



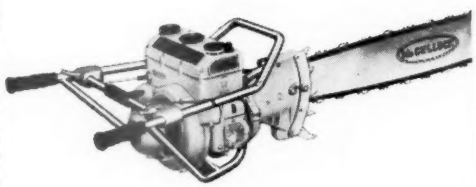
MODEL 47, a dependable and durable saw for pulp or medium-sized timber. Blades up to 42 inches long.



MODEL 4-30A, a rugged saw for production cutting in any size timber. Blades up to 42 inches long.



MODEL 73, fastest cutting of all one-man saws. For high production in any size of timber. Blades up to 42 inches.



MODEL 99, largest, most powerful saw in the McCulloch line. Blades up to 60 inches, plus 20-inch bow.

15-INCH PLUNGE BOWS are available with all models except the 99. McCulloch plunge bows cut with the tip, save time and labor felling and bucking pulp and cordwood.

McCULLOCH

World's largest chain saw builder

McCulloch Motors Corporation,
Los Angeles 45, California

5-5005-B

ALONG THE WAY With .... EDW. SCANLON

■ JOHN KENDIG of MANHEIM, PA. IS a collector of ODD-I-TREES like HARRY TURNER and has sent a COUPLE ALONG. One of them is SHOWN IN THIS ISSUE. There MUST BE OTHERS who have PICTURES OF SOME ODD AND DISTORTED TREES. Send them in. HARRY, JOHN would LIKE TO EXCHANGE some pix with you.

■ **Flew over to MILWAUKEE ON MAY 25 and MET LARRY WACHTEL who had picked up my note in the LAST ISSUE about LOCATIONS OF GOOD trees in BLOOM IN WISCONSIN. It was a BEAUTIFUL DAY IN CLEVELAND. Over the Lake we RAN INTO CLOUDS and flew over a DENSE UNDERCAST all the way. It looked like a BAD DAY for COLOR SHOTS.**

■ Just as we NEARED THE WEST SHORE of LAKE MICHIGAN the CLOUDS DISAPPEARED and it was beautiful. LARRY met me at GENERAL MITCHELL FIELD with a GRIN FOUR FEET WIDE—he had been SWEATING OUT an early morning DRIZZLE and CLOUD COVER.

■ **Went out to MILWAUKEE COUNTY'S WHITNALL PARK where JOHN VOIGHT holds forth as MAJOR DOMO. It is a BEAUTIFUL PLACE, one of the FINEST PARKS I've had the pleasure of visiting. The collection of CRABAPPLES that JOHN HAS ACCUMULATED is complete, well laid out (NOT JAMMED TOGETHER LIKE MOST COLLECTIONS) and they were in GOOD FLOWER. Especially interesting were TWO FINE SPECIMENS of PRUNIFOLIA RINKI (Chinese Pearleaf)—columnar and about 20 feet tall.**

■ Have been TRYING TO GET THE HANG of taking EKTACHROME shots with a new ROLLEICORD CAMERA. This film is MUCH FASTER than Kodachrome and so far I've hit ONE GOOD ROLL out of about six. Hope this bunch FROM MILWAUKEE HITS. There are some NICE ONES.

■ **Some of the CRABS AT THE RANCHO that were particularly BEAUTIFUL THIS SPRING were TWO OLD TIMERS, but still tops as far as I'm concerned—LEMOINE, deep, deep cerise, and ALDENHAM, cherry pink.**

■ Some of the newer ones that were lovely this spring were PINK BEAUTY, a handsome pyramid; DOROTHEA and HILLIERI, quite a bit alike but VERY PROFUSE BLOOMERS with PINKISH WHITE, fragrant flowers enveloping the branches.

■ **FRAU LOUISE DITMAN is another oldster that is covered with nice blooms of a whitish pink cast. KATHERINE is a SMALL TREE with a PROFUSION OF DAINTY WHITE starshaped double flowers.**

■ VAN ESELTINE is an attractive bloomer with white pink tinged flowers. SUN DOG is a nice UPRITE GROWER with good PINKISH WHITE bloom.

■ **It's PRETTY TOUGH to pick out the PRIZE TREE at the RANCHO—there are SO MANY, and they are BEAUTIFUL THIS SPRING—its been WET AND COOL—COOL? HE SAYS!—it MADE ICE the NIGHT OF MAY 24, and frizzled the tops of some BEECH, PHELLODENDRON, TEXAS OAK and SUGAR MAPLE.**

■ Anyway GETTING BACK to the PRIZE TREE, which is a TOUGH ONE, because there are SEVERAL NICE specimens of RED BARK CHERRY (P. SERRULA), some real rare FASTIGIATE GOLDENRAIN (KOEL. PANIC. FAST.), UPRITE PEACH (PRUNUS, VAR.) and several dozen others—but the RAREST OF THEM ALL, and there is NO RECORD of ANOTHER ONE IN THE COUNTRY, is a lone specimen of COLUMNAR SOPHORA (SOPHORA JAP. COLUMNARIS). It's JUST BEGINNING to make FORM AND SOME WOOD, so we'll be coming out WITH A FEW in another year. Won't THAT BE SOMETHING? Looked for a LONG TIME for that baby BUT WE GOT IT.

■ **Received a NICE INVITATION from WILL HAGEN the CALIFORNIA TREE ENTREPRENUER EXTRAORDINAIRE that he is taking UNTO HIMSELF A WIFE—RUTH MADSEN—best wishes and LOTS OF LUCK, and may all your LITTLE ONES BE TREES.**

■ It WON'T BE LONG before the SOUR CHERRIES will be ripe so I'LL REPEAT the recipe for RANCHO COSTA KICKAPOO JUICE—I quart SOUR CHERRIES, with pits; 1 CUPFUL OF SUGAR and a FIFTH OF BLENDED BOURBON — mix and STORE UNTIL XMAS—its smooth and DELICIOUS.

■ **Just MADE A PLANE by a WHISKER IN NEWARK on Memorial Day. LEN ANDERSON and I made a BREATHLESS DASH down the concourse—I didn't get MY BREATH BACK for an hour, and then when the CUTE LITTLE STEWARDESS came around with chow I LOST IT AGAIN.**

■ LENS GOT some BEAUTIFUL STREETS of TAILORED TREES coming along in ESSEX COUNTY. Thats quite a MODERATE ZONE for good trees. PAULOWNIAS do real well there — so do PAULS SCARLET THORNS and PURPLE PLUMS.

■ **You SHOULD SEE LEN'S "Stump Beaver." Its a FAST ECONOMICAL AND INEXPENSIVE machine for macerating stumps—and it SURE MACERATES. You will SEE IT in action at TORONTO and we'll have a STORY WITH PIX in the CONVENTION ISSUE.**

■ The "STUMP BEAVER" will soon BE AVAILABLE. It is IN PRODUCTION now by THE EXETER CO., 31 Lackawanna Plaza, Bloomfield, N. J. HERB LARNER, a very nice guy, who is VERY ENTHUSED over the rig, justifiably, IS PRESIDENT of the new company. You might DROP HERB A LINE if you are INTERESTED IN THE MACHINE, or for a GROUND FLOOR TERRITORY DEAL. Its a real comer.

■ **SAW A STREET, four rows, OF TILIA CORDATA in Philadelphia—BEAUTIFUL. They are about 40 YEARS OLD and ABOUT 20′ OR 25′ tall. Got a BIG GUFFAW out of some one a short time ago YAKKING about my having listed it as a 25′—said there WERE PLENTY OF THEM in CONNECTICUT 90′ tall. I wonder if HE KNOWS how FEW 90′ TREES there are OF ANY SPECIES—ornamental that is.**

■ REHDER LISTS T. CORDATA as maturing at 90′—MAYBE, in its NATIVE HABITAT, under FOREST CONDITIONS. I'd like to see one even half that tall. Would be worth a special trip. What some PEOPLE WON'T SAY when they ARE LOADED UP with FOREST GIANTS TO SELL.

■ **JACK KENEALY is thinking about A TOUR to LONGWOOD GARDENS for the '57 Conference. It is said to be A MAGNIFICENT PLACE. The GRAY WOLF would also LIKE TO HOLD the field demonstrations there.**

■ CALIFORNIA HERE I COME—come July 6th—to OREGON, then FRISCO and L. A.—get those MOVIE QUEENS OUT OF SIGHT—adios.

CONTENTS

Vol. 16 Bi-Monthly No. 4

Subscription Price $2.00 Per Year
(Foreign $2.50) 35 Cents Per Copy
TREES MAGAZINE
7621 Lewis Rd., Olmsted Falls, Ohio

The Editors of TREES invite discussions, comments and all type of literary materials pertaining to trees and tree preservation from any person engaged either in the scientific advancement or commercial development of the field.

CONTENTS

Page
Editorial 4
Trees On Our Streets
Sugar Maple Is New York State Tree (picture) 5
New Jersey Society of Certified Tree Experts (picture) . . . 5
An Introduction to Tree-Ring Analysis (Part One) 6
by Nathan A. Bowers
Consider The Trees 7
by Paul E. Tilford
Seasonal Control of Dutch Elm Disease and Insect Pests of Elms in Massachusetts . . . 8
by Wm. Becker, et al
First Nevada Chapter, N.S.T.C. a Success (picture) 14
Oddi-i-Trees — The Divided Oak of Spooky Nook 15
Utility Tree Program Wins "Oscar" 16
C.E.I. Tree Brochure Translated Into Japanese 19
Authors and Books 22

TREES Magazine is a bi-monthly Journal published at Olmsted Falls, Ohio by Edward H. Scanlon, and is devoted to the furtherance of the technical and business administration of Trees (Street and Ornamental); Parks Municipal and National); and Forests (State, National and Private), in the U. S. Scanlon Publishing Co., 7621 Lewis Rd., Olmsted Falls, Ohio. Subscription by mail $2 per year; outside United States, $2.50. Advertising rates upon inquiry. Closing date for advertising copy—10th of month preceding date of issue. Unsolicited manuscripts must be accompanied by return postage.

May-June, 1956 **Journal of the National Arborist Association** Vol. 16. No. 4

EDWARD H. SCANLON, Editor
7621 Lewis Rd., Olmsted Falls, Ohio
ADams 5-2357

"No place is complete without trees. A home without trees is charmless; a road without trees is shadeless; a park without trees is purposeless; A COUNTRY WITHOUT TREES IS HOPELESS."

ADVISORY COUNCIL

L. C. CHADWICK
Professor of Horticulture
Ohio State University, Columbus, O.

H. DANA BOWERS
State Landscape Engineer
Division of Highways
Sacramento, Calif.

MAUNSELL VAN RENSSELAER
Director, Saratoga Horticultural Foundation
Saratoga, Calif.

NOEL B. WYSONG
Forester, Cook County Forest Preserve, River Forest, Ill.

PAUL E. TILFORD
National Arborist Association
Wooster, Ohio

FORREST C. STRONG
Assistant Professor of Botany
Michigan State College
East Lansing, Mich.

CHARLES F. IRISH
Arborist, Cleveland, Ohio

P. P. PIRONE
New York Botonical Garden
New York, N. Y.

RALPH D. CORNELL
Landscape Architect, Los Angeles, Calif.

CURTIS MAY
Principal Pathologist, Bureau of Plant Industry Station, United States Department of Agriculture, Beltsville, Maryland

KARL DRESSEL
Associate Professor Forestry, Michigan State College, East Lansing, Mich.

MALCOLM A. MCKENZIE
Director, Shade Tree Laboratories, University of Massachusetts, Amherst, Mass.

EMANUEL FRITZ
Associate Professor of Forestry, University of California, Berkeley, Calif.

Out On A Limb

TREES ON OUR STREETS

Having been a proponent and exponent of the art of civic embellishment, thru the selection and use of trees on city streets for many years, it is gratifying to travel around the country and see the change that is taking place in this so important phase of arboriculture.

While some use is still being made of the troublesome and very expensive forest giants, the trend is definitely away from these mistakes of the past. There are still some who decry this trend to sanity, common sense and workable budgets. Fortunately they are very few and their voices are becoming weaker and weaker as this turn to the use of trees that "make sense" gains ground at a rapid vote from coast to coast.

Recently while riding in an airline bus, we struck up a conversation with the only other passenger. Strangely enough the conversation soon swung around to street trees and the tremendous values they impart to the stability, beauty and well being of a city—or rather, that which common sense trees could do. He became quite vehement about the use of big trees—"the darn things should be out in the woods, or in the parks, where they can't wreck everything. When are you people going to become realistic and get rid of them and start using trees that do not become so large." He was then given a fast ten minute lecture on what is being done by a number of visionary tree planters across the country. It so happened he was a close friend of the mayor of his city (a large mid-western city) and he vowed he would make it a point to see him and tell him of this new philosophy. He sounded very much as if he meant what he said.

It seems strange that this attitude is shared about 100% by every layman to whom we have talked, and there are thousands of them, but for a long time, and the oppositon still exists, some arborists, nurserymen and other professional horticulturists violently opposed the trend to "dwarf" trees—whatever they are. No one, to the best of our knowledge, has ever advocated using "dwarf" trees, which was probably meant to be derisive, unless they meant that, by comparison with a 60′, 70′ or 80′ forest giant, that a neat, orderly 20′ to 35′ trouble free tree was a "dwarf." If so, we agree wholeheartedly. Also this propaganda that streets of big overpowering trees are tourist attractions is pure unadulterated rubbish. Are the Valley Forge Dogwoods big trees? True they are not street trees—but why not? Are the Washington Cherry Trees forest giants? Nope—and of course they are not street trees—again, why not? People by the hundreds of thousands flock to see them each year. Name a street of Elms or Silver Maples (ugh!) with the same appeal!

Soon tho. very soon there will be streets of Japanese Cherries, Flowering Crabapples, Pauls Scarlet, Lavalle and Washington Thorns for people to flock to and admire and it won't break budgets to maintain them. We know, we saw streets of each of these varieties just a few weeks ago.

Motor Traffic Taking Toll of Lawn Trees

The motor menace which is taking a terrific toll of life and limb on the highway now is invading the backyard.

Trees and shrubs, as well as humans, are being killed and crippled by the thousands because of careless drivers.

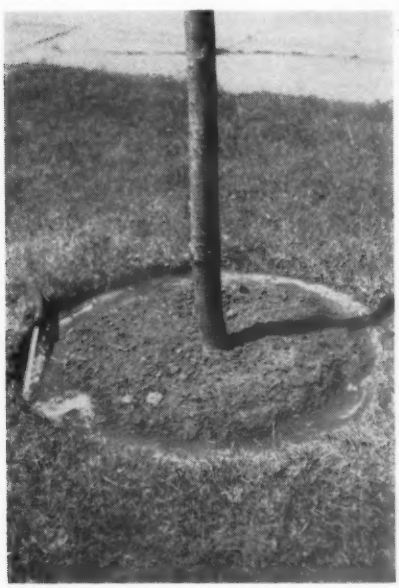
Unable to dodge the traffic, these inanimate objects are targets not only for lawn-hopping autos but also for other power-driven machines such as lawn mowers, lawn edgers, leaf collectors, leaf mulchers and planters.

The power lawn mower is the worst offender, with automobiles a close second, says J. M. Benson, field representative of the Davey Tree Expert Co. With greater weight and speed than the old hand mower, the motor power has become one of the hazards of treedom, in some cases causing more injury than the combined efforts of insects, rodents and dogs.

Unless home gardeners learn to exercise more caution, the tree damage from power devices will be worse this summer than ever before because more of these gadgets will be in use.

When young tree trunks are banged and cut by these rolling wreckers, injuries result which take years for nature to heal. And open wounds are open doors to insects and disease, besides ruining the beauty of arboreal ornaments.

The misuse and abuse of power gadgets have revived the old practice of maintaining protective circles around trees.



Every tree should be afforded this protection. Keep grass cut back from trunk to protect from lawn mower injury; to facilitate mowing, and to aid in watering. Keep "skinned" area mulched with straw or wood chips to maintain even soil temperature winter and summer.

N. Jersey Society of Certified Tree Experts Elect

At the winter meeting of the New Jersey Society of Certified Tree Experts the above members were elected to office for 1956. Seated (L. to R.) Henry Vaughn-Ames, President, and Ed Brarman, Vice President. Standing (L. to R.) Frank Scott and Don Krautter, Board of Trustees and Carl Witte, Secretary-Treasurer.

Sugar Maple is N. Y. State Tree

Governor Averell Harriman signs the Bill which designates the Sugar Maple (Acer saccharum) as the official tree of the State of New York. With the Governor were (L. to R.) Assemblyman Willard C. Drumm of Niverville, N. Y.; Francis W. Larmore, of Schenectady, Co-chairman of the Legislative Committee of the New York State Arborists Association (the sponsoring organization); Dewhirst Wade of Pleasantville, past president NYS Arborists Ass'n) and Mrs. Cathryn Lane, past president N. Y. Federation of Garden Clubs.

An Introduction to Tree-Ring Analysis

Editor's Note: This story, in two parts, is the complete chapter of the new fifth edition of Dr. Nathan A. Bowers highly regarded "Cone-Bearing Trees of the Pacific Coast." The first edition was published in 1942. We are certain you will find this subject fascinating—in fact to the point of making it a worthwhile hobby. Publication is by permission of Dr. Bowers and the publisher, Pacific Books of Palo Alto, Calif.

By NATHAN A. BOWERS,
Atherton, Calif.

You who enjoy the beauty of Pacific Coast forests and have spent happy hours in them, learning to recognize and to know our native conifers, may find a new field for adventure in another phase of this same interest, this time looking beneath the surface or inside the bark of our forest trees.

A laboratory with its scientific apparatus is not at all essential to your study of growth rings in trees. All you really need is some general knowledge of the basic principles underlying tree-growth habits, plus the desire to apply this knowledge in a study of whaever tree sections come conveniently to hand —a limb blown off by the wind, a stump where a tree was cut down, or the end of a piece of lumber; these all give an opportunity to examine closely a cross section of wood. And in any cross section you will find a key to the history and characteristics of the growth represented. Such an examination, even though based on only brief study of the subject of tree-ring analysis, will afford a real thrill when you find that you can read and interpret much of what the growth rings so faithfully record.

Native conifers on the Pacific Coast—unlike some trees in the tropics—record their growth in a manner now well understood by specialists who have made long-time studies of them. You can quickly learn some of the fundamentals and then use this knowledge as you explore and study further on your own account. You may be surprised and sometimes amazed by what you will discover.

If we start by closely examining one of our native conifers, we shall see how and why it lays down so accurate a record of when and how much it grew. The annual growth record is made throughout the entire framework of the tree—that is, in the limbs as well as in the trunk itself. On the Pacific Coast the climate favors a growing season and a dormant season. In the spring, when the days lengthen and the warm sun coaxes out new foliage, the whole tree growth. As the foliage increases the area

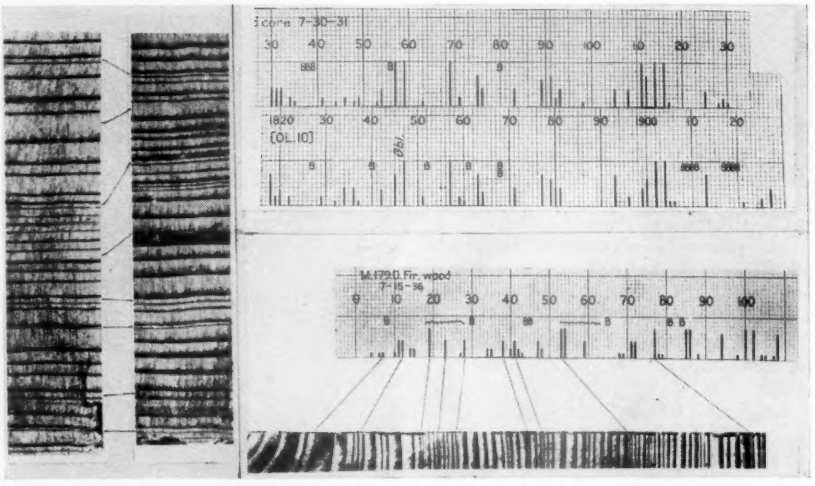


Fig. 1. Bottom. Enlarged photographs of growth rings from two trees. In each ring the light portion is the large-celled growth of spring; the dark portion is the denser growth; i.e., the smaller cells formed prior to dormancy. Note the sharply defined line that marks completion of each growth cycle. That these two specimens grew in the same years is shown by corresponding ring traits. Points of similarity are joined by lines between the two specimens. Upper right. A plotted record of relative thinness and the specimen from which it was made. This is called a skeleton plot. Upper left. Two plotted records, placed together for comparison, showing relative degrees of thinness in rings of two trees. Note that such close conformity (more than 80 per cent) betokens the same causes affecting both trees, i.e., these records match and crossdating has been established.

stirs with nature's irresistible demand for spread out to absorb the sun's rays, the roots reach down into soil soaked by winter rains, obtain there the necessary life-giving liquid and send it surging upward through tube-like cells, now forming rapidly to aid in this function, between last season's growth and the inner surface of the bark. This upward surge of sap occurs only in this one zone, that is, in outer rings of the sapwood and in new cells forming next to the bark. These cells, when the spring growth period arrives, increase in number, rapidly expand, and prepare to handle the surge of sap circulation that is a vital part of the growth process.

This increase and growth of the tube-like cells may continue until the total width of newly formed material has thickened to as much as a quarter or perhaps a half inch. Then, as the summer passes and the tree completes its seasonal growth, the demand for sap subsides (or the supply of available moisture is exhausted) and cell growth decreases. As sap flow lessens, newly formed cells are smaller and are crowded more closely together. In this compact form they present a generally darker color and a firmer texture. The dormant period thus is preceded by the dark, densewood layer which is that part of each year's growth most easily distinguished when counting off the sucessive growth rings. The densewood, consisting of these small dark and closely crowded cells, usually terminates in a sharply fined line formed by the notable contrast between the small cells of densewood immediately preceding the dormant season, and the large, thin-walled cells formed by the first surge of spring growth. It is this line which you will soon learn to recognize as marking the termination of one growth cycle and the beginning of another.

Examine the end of any piece of pine or redwood timber and you will see that in successive growth rings the large cells of spring growth make up the relatively light colored, soft portions of the wood; the small closely crowded cells make a dark ring representing the slower growth which precedes the dormant period. Thickness of the rings vary, sometimes from very thick to very thin. This is the point at which you may feel a quickening of interest.

You may learn, for example, that in a garden favored with rich soil and ample moisture, a young Monterey pine will show annual radial growth as much as three-quarters of an inch in thickness. That is, the diameter of the tree may increase by 1½ inches in one year. If this continues for a ten-year period the tree will have attained a diameter of 15 inches. Now contrast this with the

(Continued on Page 10)

CONSIDER THE TREES

By Paul E. Tilford,
Executive Secretary
National Arborist Association

Trees are the largest living things in our environment and we are almost in daily contact with them. Shade and ornamental trees are growing on our home grounds, on our streets and highways, in our parks and cemeteries, on college campuses, on institution grounds, on the grounds of industrial plants, and in every location where large plant materials can be used to make living more pleasant.

It has been estimated that tree owners spend $150 million annually for tree care services. Barron's Financial Weekly, June 14, 1954, reported that utility companies spend another $100 million on trees to reduce tree interference with utility services.

Why Trees Are Valuable

What do shade and ornamental trees do for mankind to justify an annual expenditure of a quarter billion dollars? Just what do they contribute to our living needs or comforts which makes them that valuable?

First of all, trees provide shade. Over a large portion of the country, at some time during the year it is too hot for comfort. Shaded areas are several degrees cooler and it is much more comfortable to be in the shade than in direct sun during hot weather. Trees shade our homes and lawns. Properly placed shade trees may cool the inside of our homes by 5° to 10°. One need only to travel over towns and cities by plane to be impressed with the extensive use made of trees to form a giant umbrella to protect people from the intense sun.

Trees used as windbreaks have reduced by as much as 22 per cent the fuel requirements to heat a home.

Trees reduce the amount of glare from paved streets, sidewalks and white buildings. In new residential developments with row after row of white houses, paved streets, and no large trees, there is intense glare from the sun. One of the first things new home-owners want is trees.

Trees in a city act as dust collectors. The foliage collects a large amount of dust and soot which otherwise would settle on the streets and houses. The leaves hold this dirt until a rain comes and either washes it into the ground or down the sewer. In some tests made in New York City it was found that on the leeward side of tree-covered Central Park the dust count was reduced by 75 per cent.

Trees muffle sound and cities are quieter than they would be without shade trees. Noise may be reduced by as much as 50 per cent by trees.

In addition to providing physical comforts, shade trees add to man's mental health and well being. Speed, machines, noise, being shut in by walls and a ceiling day after day, continual pressure of work and excitement, always in contact with other people, high production and efficiency, pavements, skycrapers, and most things common in every day city life are foreign to the surroundings under which man has developed. Gardens, lawns with trees and parks give an opportunity for daily contact with nature and are a great influence in relieving mental tension. Association with trees help brush the cobwebs out of the brain. There is a kind of peace and restfulness to be found where men and trees live together.

Fine shade trees are an inspiration for people to do better work. They are morale builders. Some industrial concerns maintain that well landscaped grounds around their plants are profitable because of the effect on employees and the public.

People place a value on trees because of their beauty as single specimens and as units in a landscape planting. Houses seem to just stick up out of the ground when there are no trees around them. They appear close together and crowded. People living in them tend to lose their individuality. They have no privacy. The proper placing of trees and other plant materials overcomes this. Plants tie the houses to the earth so that they seem to belong there. Trees between the houses set each one off so that it is a private home.

These are some of the reasons why shade and ornamental trees are valuable and it is to preserve and enhance these values that people spend money for tree-care service.

Our Job as Arborists

Our job as arborists and commercial tree service organizations is tree preservation. When carried on properly our job is the profession of Arboriculture. We are the ones, supposedly, who have the knowledge, know-how and experience to help the tree-owning public preserve their investment in trees.

We have made much progress in our field in the past 30 years with new tools, new equipment and new materials. It seems to me that our greatest advances have been in disease and insect control and in the fertilization or feeding of trees. The help received from our entomologists, plant pathologists, horticulturists, foresters and other scientists in the state experiment stations, colleges and the U.S.D.A. has been of great value.

In the face of all of this progress and great increase in knowledge and know-how, at times the present day arborist finds it difficult to operate efficiently and expertly. This is due largely to the lack of sufficiently skilled and well-trained men. In a talk given at the Santa Barbara meeting of the National Shade Tree Conference, Dr. L. C. Chadwick, Secretary of the Conference, made the statement which follows: "It seems to me that the arboriculture industry finds itself in a situation where the business owners may be highly proficient, through training and experience, and capable of doing high quality work but due to the lack of a well-trained crew with a keen desire to 'Know Trees,' and due to the home-owners willingness, through ignorance or apathy, to accept inferior quality work the arborist is not always able to do the quality of work he would desire."

Our Job In The Future

Any service or business for which there exists a need has a future. Just how bright that future is depends on how great is the need and how efficiently and satisfactorily can those who supply the service satisfy the need.

There is every indication of a greater field for professional arboriculture in the future. Authorities are predicting that in 20 years the population of the United States will be over 225 million. Within ten years from now, there will be an additional 20 million Americans needing homes. New homes have been built at a rate of over a million a year and still the demand is not satisfied. Signs other than home construction point to a fairly high economy in the long range period ahead. It is said that by 1975 we will use over three times the electric power we consume today.

With large expansion in the number of homes, expansion in facilities to supply utility services, more highways, streets and parks there surely will come an increased need for the arborist's services. Much of it will not be large estate work, such as some of us enjoyed in the '20's, but it will be tree and landscape work on small and medium-sized places which

(Continued on Page 20)

Seasonal Control of Dutch Elm Disease and Insect Pests of Elms in Mass.*

Prepared by W. B. BECKER with the cooperation of M. A. MCKENZIE, A. I. BOURNE and W. D. WHITCOMB
University of Massachusetts

I. ELM BARK BEETLES

October 1 to April 1 (to March 15 in eastern Massachusetts): Sanitation Work. Burn *dead* elm trees, logs and branches that died from any cause, not just from Dutch elm disease, since previous May, especially within 500 feet, preferably 1,000 feet, of elms to be protected. If the bark can be removed more easily, just remove and burn the bark but be thorough.

This is most important, because elm bark beetles breed in the bark of all such material. The object is to destroy the bark before these beetles finish breeding in it. Destruction afterwards is useless. *Bark* beetles may carry the Dutch elm disease fungus into any *dead* bark when they enter it to lay eggs. The young beetles reared there may later carry the fungus into healthy elms, especially those nearby, when they *feed* on *living* twigs.

II. ELM BARK BEETLES

Late March to late April, before leaf buds open: *Experimental* spraying of valuable healthy elms to effectively reduce twig feeding by elm *bark* beetles where local Dutch elm diseae conditions are bad. This is the more important of the two spray applications (Sections II and VI) listed for elm *bark* beetles. Twig feeding may continue from spring to fall, but ordinarily elms become infected with the Dutch elm disease fungus in the spring and early summer. Thorough spray coverage to the top of each tree is essential: this requires calm, dry weather. Temperatures should be well above freezing so spray does not freeze.

Note: The DDT applications given here in Section II, plus those in Section VI greatly reduced subsequent twig feeding and new infections by the Dutch elm disease fungus in experimental tests. Notice that an unusually high concentration of DDT emulsion spray is required in hydraulic sprayers and an unusually large volume of 12% DDT emulsion spray must be applied per tree by mist blower. Compare with small amounts of DDT needed for elm *leaf* beetle grubs (Section IV).

Unfortunately, applying the large amount of DDT required here is very expensive and involves hazards which should be considered. See cautions below. *Small amounts* of DDT like those given for elm *leaf* beetle grubs (Section IV), gave poor to no protection against twig feedings by *bark* bettles.

In Hydraulic Sprayers: (a) Add 5½ gallons of home mixed 35% DDT emulsifiable concentrate to each 94½ gallons of water. This makes 100 gallons of a 2% DDT emulsion that is ready to spray on dormant living elm trees.

Prepare the 35% DDT concentrate by dissolving 16 pounds of DDT (technical grade) in 16 quarts of xylene, also called xylol, (industrial grade), and then add one pint of Triton X-100.** Mix in a well ventilated place away from fires because xylene is flammable and the fumes may be toxic to workers. Use soon after mixing. Keep containers tightly closed. Avoid temperatures below 50°F., if storage is necessary. This DDT concentrate is suggested because it is much less toxic to living plants than most commercial emulsifiable concentrates when used at this strength.

Or, (b) Add 7½ gallons of a commercial 25% DDT*** emulsifiable concentrate, preferably one with xylene as the solvent, to each 92½ gallons of water. (Xylene was less injurious to plants than other solvents that were tried. This makes 100 gallons of a 2% emulsion that is ready to spray. Several commercial DDT emulsifiable concentrates have injured living plants in leaf when used at this strength.

Spray trees uniformly until insecticide begins to drip.

Don't use DDT wettable powders for this spray. They do not remain effective long enough.

Don't dissolve DDT concentrates in kerosene, fuel, or other oils for hydraulic sprayers. They will kill living plants.

Caution: Flush spraying equipment thoroughly with water immediately after use: the solvents in these strong emulsions may injure rubber hose and gaskets.

In Mist Blowers: (a) Add 32 gallons of the home mixed 35% DDT emulsifiable concentrate listed above to 68 gallons of *water.* This makes 100 gallons of a 12% DDT emulsion that is ready to spray. Apply 2 to 5 gallons per medium to large size elm.

Or (b) Add 45 gallons of a commercial 25% DDT emulsifiable concentrate with xylene as the solvent (xylene was less injurious to plants than other solvents tried), to 55 gallons of *water.* This makes 100 gallons of a 12% DDT emulsion that is ready to spray. Apply 2 to 5 gallons per medium to large elm.

Don't dilute DDT concentrates in kerosene, fuel or other oil for this mist blower application. When applied in these large amounts they can seriously injure living plants.

Caution: The high concentration of DDT emulsion sprays (used in hydraulic machines) needed to give effective reduction of twig feeding by elm *bark* beetles is toxic to cattle, birds and squirrels and was toxic to bees when applied to blossoming elms. Keep off food and forage crops. The large amounts of DDT spray needed for this purpose (2 to 5 gallons per tree) when applied by mist blower may be similarly toxic to animals. Repeated applications of such large amounts of DDT may also be harmful to elms. All DDT concentrates can be toxic to people so avoid contact with them. Follow manufacturer's cautionary directions. Wash immediately with soap and water if it gets on your skin. While handling or spraying, it is best to use neoprene-rubber gloves and a respirator that will protect operators against organic vapors.

III. CANKER WORMS

Late April to early May. When leaf buds open: Spray elms for canker worms only where they eat unfolding leaves. This is not a pest everywhere and does not occur every year. Use same DDT formulations listed later in Section IV for elm *leaf* beetle grubs. (Elms sprayed *heavily* with DDT earlier, as outlined in Section II, for elm *bark* beetles, will not need this spray application. However, if that dormant application was *light,* it may have no effect on canker worms now.

IV. ELM LEAF BEETLE GRUBS, MITES AND APHIDS

About June 1, when elm leaves are almost full size: Spray elms for elm *leaf* beetle grubs and also for mites and

**Originally prepared at the request of the Western Massachusetts Tree Wardens' and Moth Superintendents' Association. Revised by request to include the entire state.*

***An emulsifying agent made by the Rohm and Haas Company, Washington Square, Philadelphia, Pennsylvania.*

****A commercial methoxychlor emulsifiable concentrate may be substituted for this DDT spray. It is much less toxic to warm blooded animals than is DDT but is more expensive.*

aphids, if troublesome. Direct spray at under side of leaves where grubs feed. Elm *leaf* beetle grubs are usually common pests every year. Elms sprayed *heavily* with DDT *earlier* as outlined in Section II for elm *bark* beetles, have not been seriously defoliated by elm *leaf* beetle grubs. However, if that dormant application was *light* it will have no effect on elm *leaf* beetle grubs now.

In Hydraulic Sprayers: (a) Use 2 pounds of a 50% DDT wettable powder. *Or* (b) one quart of a 25% DDT emulsifiable concentrate per 100 gallons of *water*. *Or* (c) where an insecticide still less toxic to animals is desired, use equal concentrations of methoxychlor. DDT and methoxychlor sprays do not harm mites or aphids but do kill their natural enemies. Consequently mites and aphids may become abundant afterwards.

Spray trees uniformly until insecticide begins to drip.

To help prevent *mite injury* (See Section VIII): (a) Include 2 pounds of an Aramite wettable powder (or Orthomite, Niagaramite, etc.) *Or* (b) ¾ of a pint of a 30% Aramite emulsifiable liquid concentrate per 100 gallons of above spray. Thorough spray coverage is essential.

Or (c) Instead of DDT or methoxychlor plus a miticide, use 4 pounds of lead arsenate plus one pint of raw linseed oil per 100 gallons of water. Lead arsenate does not cause mites to increase. It is much more poisonous to people and animals than is DDT, so must be used with much greater caution.

Don't get lead arsenate on people, food or forage crops, or in water supplies.

To help combat aphids (See Section IX): Include one pint of 40% nicotine sulphate per 100 gallons of above sprays. Thorough spray coverage is essential. *Caution:* Nicotine sprays are toxic to people. Avoid contact.

To help combat mites and aphids: (a) If both mites and aphids are troublesome, include 2 pounds of a 25% malathion wettable powder *Or* (b) 1½ pints of a 50% malathion emulsifiable liquid concentrate per 100 gallons of the DDT or methoxychlor sprays mentioned above. Dilute malathion preparations of other concentrations according to manufacturer's directions. Malathion is effective against both mites and aphids. Thorough spray coverage is essential. *Caution:* Follow manufacturer's cautionary directions.

Don't get sprays on food crops within 2 weeks of the time crop may be eaten.

Avoid getting sprays on people. The operators themselves should be careful since they may be working with sprays for long periods.

In Mist Blowers: To make 100 gallons of spray add 24 gallons of a 25% DDT emulsifiable concentrate to 76 gallons of water.*** This makes a 6% DDT emulsion that is ready to spray. Apply lightly but completely to foliage. Only about 1 pint to 2 quarts of 6% DDT spray are needed to cover small to large elms. Lower concentrations may be used in proportionately large amounts. Consult maker of your mist blower for exact information. DDT applications may be followed by mite or aphid injury.

To help prevent mite injury (See Section VIII): Include 8 gallons of a 50% Aramite emulsifiable concentrate (Niagaramite, Orthomite, etc.) per 100 gallons of above spray. Dilute other liquid Aramite concentrations according to manufacturer's directions. Thorough spray coverage is essential. This may mean increasing the volume of spray applied per tree.

To help combat aphids (See Section IX): Include 6¼ gallons of 40% nicotine sulphate per 100 gallons of above spray. Thorough spray coverage is essential. This may mean increasing the volume of spray applied per tree. *Caution:* nicotine sprays are toxic to people.

V. DUTCH ELM DISEASE AND ELM BARK BEETLES

July 1-15: Systematic scouting for elm disease: Experimental pruning and sanitation. See A, B, C, C^1, C^2, and D following.

A. *Collect* twigs (½ inch diameter) from recently wilted elm branches and send to Shade Tree Laboratories, Univeristy of Massachusetts, Amherst, for diagnosis. Be sure to include exact location of tree in town, together with other important data on tree.

B. Experimental *pruning* of living infected elms: Where a small, limited infection is found in a tree, try saving tree by immediate removal of affected parts. Cut branches back to major crotch or trunk to insure eliminating all infected wood. Send samples from removed branches for laboratory test to confirm nature of infection, but *don't delay pruning*. Watch pruned trees carefully for one year for possible renewal of symptoms.

C. Sanitation work (cutting and burning diseased and dead elm material): Immediately remove and burn all elm trees, logs, and branches killed from any cause, not just Dutch elm disease, especially within 500 feet, preferably 1000 feet, of desirable elms.

Note: Generally speaking, during the entire summer this should be done *within a month* of the time the branch or tree dies. Bark beetles may immediately carry the Dutch elm disease fungus into any such material when they lay eggs AND in a little over a month countless young beetles reared there can carry the fungus to many nearby elms. *Don't delay destruction* of *any* beetle breeding material. This is of utmost importance.

(1) Peeling and burning bark on *cut* elm wood: If the bark can be removed more easily when the insects are still present, just *remove* and *burn* the bark, but be thorough.

(2) Spraying *cut* elm wood: If the above cannot be done promptly, the cut elm wood should be sprayed immediately with a one per cent DDT oil solution to prevent bark beetle entrance and exit.

To prepare spray (dilute one part) (by volume) of a 25% DDT solution or emulsifiable concentrate in 24 parts of fuel oil or kerosene. If properly applied, one application will be effective all season. Use a small hydraulic sprayer that has oil resistant rubber fittings and hose. Spray all bark surfaces on each log until spray runs off, turning logs over to spray all sides.

Don't spray a log lightly or incompletely: poor to no control will result.

Don't spray piled logs: not enough bark surfaces can be reached.

Don't use this spray on standing elms (dead or alive), or near living plants: it will injure or kill any living plant over which it drifts. *See cautions* on use of DDT sprays in Section II.

D. Spraying *standing* diseased, or any dying or dead elms: *(Experimental)* When such trees cannot be cut down and burned promptly, spray immediately and thoroughly all bark surfaces all around the trunk and branches and to the top of such elms to temporarily reduce *bark* beetle entrance and exit. This will help protect nearby healthy elms from Dutch elm disease. During spring *dormant* season use the DDT emulsion formulations (diluted in *water*) given in Section II. During the *foliage* season use the formulations given in Section VI and repeat once a month on elms still partly alive until tree is cut or until September. Remove and burn tree as soon as possible.

Don't depend on this spray if you can remove and burn tree.

Don't apply this spray where it may drift onto food or forage crops. See Section II for other cautions.

Don't spray *lightly* as for elm *leaf* beetle grubs; it will do no good.

VI. ELM BARK BEETLES

July 1-15: *Experimental* spraying of valuable healthy elm trees to reduce twig

(Continued on Page 18)

****DDT concentrates dissolved in oils have given good control of elm leaf beetles and other leaf chewing insects when applied lightly to foliage by mist blowers. Excessive applications, however, are much more apt to cause spray injury than the emulsifiable concentrates which are dissolved in water.***

Tree Rings

(Continued from Page 6)

section of a limb from one of the high-altitude junipers (J-3 in the manual) which you may bring home from a vacation trip to the high Sierra. After cutting a cross section from such a limb and polishing it, inspection with a magnifying glass may disclose a surprisingly close ring spacing, with perhaps more than 200 rings in a single inch. In other words, you will find wide range in growth rates: a single ring in some varieties may be ¾ inch thick or it may occupy less than one two hundredth part of an inch in slower growing species.

In conifers it is normal for the age of a branch to be about the same as that of the trunk at the level of emergence. This results from the natural growth habit of these trees in putting out branches at the tree top in proportion to the rate of progress of the leader or topmost growth. However, since branch diameter is much less than that of the trunk, the rings are crowded more closely together in a branch than in the trunk. In a test made by Doctor Glock to explore this relationship, a tree 19 feet high was felled and sectioned so as to cut across both trunk and limb at the point of emergence. The trunk radius was 3 inches and that of the branch ½ inch, that is, the ratio of average ring thickness, trunk to limb, was six to one.

Rules To Remember

Tree growth may be a complex process in some aspects, but it follows certain fundamental patterns you can readily understand when you have mastered a few simple rules. The first rule to remember is that as successive seasons roll around and each new cycle is started, the tree merely ads something outside what was there before—it puts on a new dress. In the trunk, in the limbs, and in the roots it puts on this new growth right over what was there before. More particularly, the addition is a new ring of wood laid next to and on the outer surface of what was added in the previous season's growth.

Don't confuse yourself by trying to apply this growth rule to foliage—there it does not apply. Foliage, to be sure, comes out in a new dress each season, but each year it drops off most of the previous season's growth. This is not the same plan followed by the wood itself. In the wood proper, that is, under the bark on limb, trunk, and root, nothing is dropped off or wasted. Instead, all growth is left in place, year after year, to increase the size and provide the constantly increasing structural strength needed to form and support the tree as a whole. This, indeed, is how a tree "makes wood."

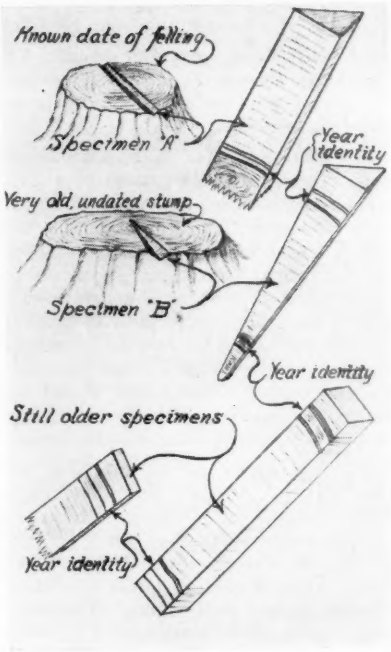


Fig. 2. Starting with a growth-ring of known date, such as the outer ring on a stump (A), and by crossdating from near the center to rings near the outer portion of a second specimen (as in B) there is then available a series of growth rings in B for finding agreement with a third specimen, and so on. By using beams from cliff dwellings and other wood preserved a long time, sequences have thus been continued for many centuries.

The second rule to keep in mind is that in trunk, limbs, and roots, new wood growth occurs only on the *outer surfaces* of the wood. That is, not outside the bark but just under it. Most of the bark itself (certainly the outer portions) is merely a wrapping or protective covering to shield nature's processes which are taking place in delicate operations beneath the surface. Thus the bark is not part of the wood but serves as protection for the sensitive surface of the growing wood. And this growth in the wood takes place just under the bark.

It is in this area, including the sapwood and inner bark, that the life blood (sap) of the tree circulates. Each year a new layer of wood is put on and then, at the end of the growing season, whatever wood growth was made is sealed off, as it were, to remain just exactly that way so long as the tree lives. This is what makes tree-ring analysis so fascinating because nature's process leaves a faithful historical record of just what happened to the tree and what it did in rate and time of growth, in each successive season throughout its entire life.

The important thing to know here is that the growth near the inner part of the bark is the *youthful* part of the tree. Each year its enthusiasm is renewed in due season and, in accord with the degree to which the tree enjoys conditions favorable to growth, there will be development and expansion in the form of a new layer of wood cells. The layer added each season will be thicker or thinner in accord with growing conditions.

This vital, living part of the tree is called the cambium or the cambium layer, which is a living tissue with most remarkable properties. Its cells on the outer face subdivide to form bark and on the inner face the daughter cells form wood. The zone close to this most vital part of the tree, that is, in the adjoining wood layers, known as sapwood, and in the inner portion of the bark, is the only part of trunk, branch or root where growth can be manifest. It is here and here only that the additional wood layers are added each year.

Also in this zone, and here only, is the curious two-way exchange of circulatory system which carries moisture up from the roots and food down from the foliage. In the springtime, roots extract moisture and dissolved minerals from the soil and send them up to the foliage where sunlight, through a process called photosynthesis, manufactures the food materials on which the tree lives and grows. These food products must be distributed and this is done through the live, active cells recently formed along the inner side of the bark. This distribution of food, mostly downward, constitutes the second half of the two-way exchange.

Proof of the importance of this growth-zone lies in the fact that trees can be killed by "girdling"—that is, by making a cut, with knife or axe, entirely around the tree, through bark and the adjoining wood, to break the continuity in this circulatory system.

This "living layer" close to the inner part of the bark surrounds all parts of the tree from the deepest root to the topmost twig. It may help to think of the trunk of a large tree is being made up of five parts, namely, (1) the inner core of inactive heartwood, (2) the living sapwood, (3) the cambium layer, (4) the inner, living layer of bark, and (5) the inert or dead outer bark.

Preparing Specimens for Ring Counts

A freshly-cut cross section of a tree, such as a stump left after the tree has been felled, offers an attractive place to begin counting rings because here you have a tree definitely dated by its cutting. The ring just inside the bark, of course, is the ring of the most recent growing season; starting there, you can count inward to determine the year when the tree made its first growth ring at this height. Many of our native

conifers require little or no preparation of the surface to make the rings legible in a freshly cut cross section. Even a well-weathered stump of a redwood may be still quite readable, since the early, light, wood cells, when exposed, weather more quickly than do the harder, darker densewood rings, and the resultant ridges often can be counted readily.

For dead wood having less favorable types of wood fiber and for some trees which show little difference between fast- and slow-growing portions of the rings, you may have to cut across the specimen with a fine-toothed saw and then smooth the surface with sandpaper or a power-sander to make the succesive rings stand out. If this proves difficult work, select the most favorable route from center to bark and polish only a narrow path along this line on which to examine successive rings. Where the rings are very close, as in slow-growing trees, a magnifying glass will help you make an accurate count and a needle point will be convenient for marking five- or ten-ring points.

The U. S. Forest Service and some lumber companies find extensive use for an instrument known as an "increment core borer" or the Pressler corer, which is made in Sweden. This instrument (cost about $35) is satisfactory for us in soft woods, to take cores of about 3/16-inch diameter up to a maximum length of 15 inches. It is too short to have wide application on our larger trees and even for these short cores it is not recommended for use on oaks, junipers, or other very dense woods.

Cores taken by this tool (if the rings are not easily readable on the untreated wood) may be glued to a grooved plywood strip and then treated so as to make the individual rings stand out. Treatment may be by sanding and then polishing in the same way that other cross section cuts are made to present more readable surfaces.

The removal of these cores does not harm the trees if the boring is made at a time of year when the sap flow can quickly heal the wound and seal off the hole at the surface. Recommended treatment is to leave the hole for nature to close except in old, slow-growing trees where a hardwood dowel may be used as a plug.

Rates of Growth To Be Expected

A common error of the beginner, in examining a tree-ring specimen, is to assume that the wide rings necessarily mean wet years. This is true only for a location where the amount of moisture

(Continued on Page 16)

All Models Of

FANNO SAWS

Disston, Atkins and Seymour Smith pruning saws and shears. Safety equipment for tree work.

COMPLETE LINE OF TREE SURGERY SUPPLIES. WRITE FOR CATALOGUE.

Fruit Growers of Chester County, Inc.

WEST CHESTER, PA.

FOR SAFETY

spray with Pratt's

Pratt's Sprays are formulated for use in mist blowers or hydraulic sprayers to give the greatest degree of safety and effectiveness for shade trees and evergreens.

PRATT'S 25% DDT (petroleum solvent) has created an enviable reputation for safety to the trees, even under conditions of heavy application. Correctly balanced for long residual toxicity. This material will stand freezing weather.

PRATT'S X 25% DDT (xylene solvent) is manufactured to meet certain City or State specifications for Dutch elm disease spraying. Made according to U.S.D.A. formulations, with or without white oil.

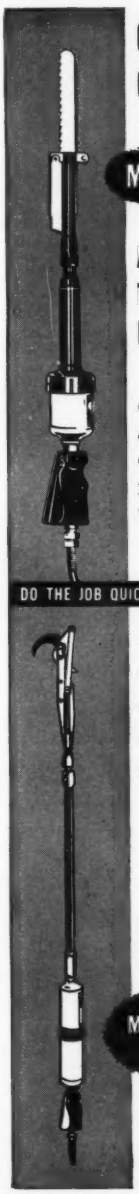
SCALECIDE—The oldest and best known dormant oil spray. Contains 96% highly refined, highly paraffinic dewaxed oil. Use Scalecide for the control of scale, aphis, red mite, and over-wintering insects on shade trees, fruit trees, evergreens and ornamentals.

PRATT'S SUMMER SPRA-OIL— A miscible 97% white oil type summer oil. For use in the control of red spider, scale crawlers, white fly and as an effective ovicide, also used as a dormant spray for evergreens where a lighter oil is desired.

D-X INSECT SPRAY—One of the most effective non-poisonous sprays for sucking and chewing insects of shade trees as well as fruit trees. Contains rotenone, pyrethrum and piperonyl cyclonene for great effectiveness and safety.

Pratt is basic in Chlordane, Malathion, Lindane, etc.

B. G. PRATT COMPANY 204 21st AVENUE PATERSON, N. J.



Cut Trimming Costs 30-50% *with*

MILLER-ROBINSON

AIR POWERED TREE TRIMMING EQUIPMENT

•

Quick cutting action speeds your pruning operations, gives you big savings over usual methods

DO THE JOB QUICKLY, EASILY, ECONOMICALLY

- Sharp, clean cuts
- Less operator fatigue
- Stands hard work, abuse
- Time-tested, field proved
- You'll find the right unit among 14 insulated and non-insulated models —with full line of compressors and accessories

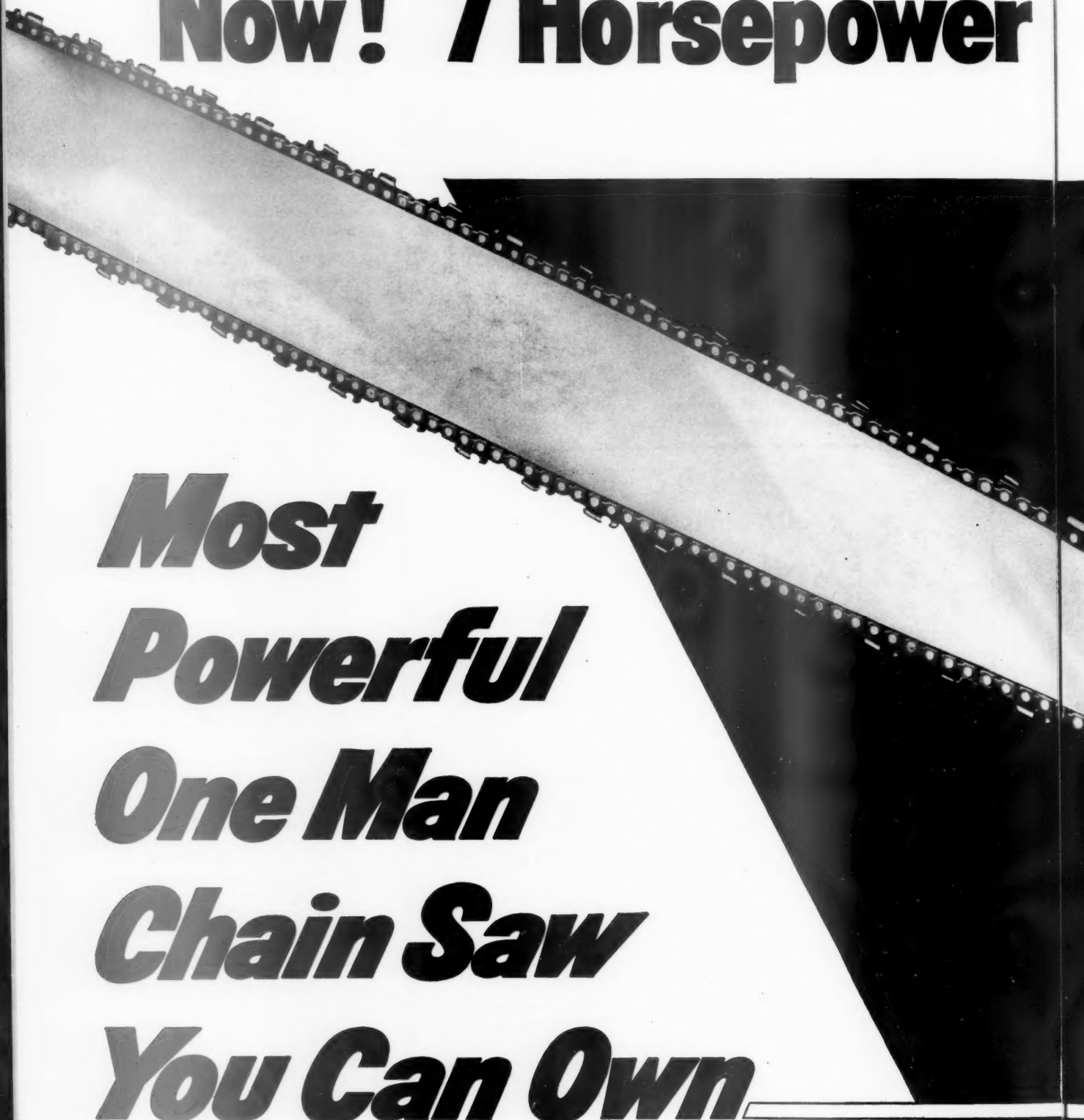
Write for Complete Information and Name of Nearest Dealer!

MILLER-ROBINSON CO.
7007 Avalon Boulevard
Los Angeles 3, California

Pioneer and World Leader in Air Powered Trimming and Pruning Equipment

You Saw Their Ad in TREES

Now! 7 Horsepower



Most Powerful One Man Chain Saw You Can Own

A COMPLETE LINE OF CHAIN SAWS FOR EVERY CUTTING JOB

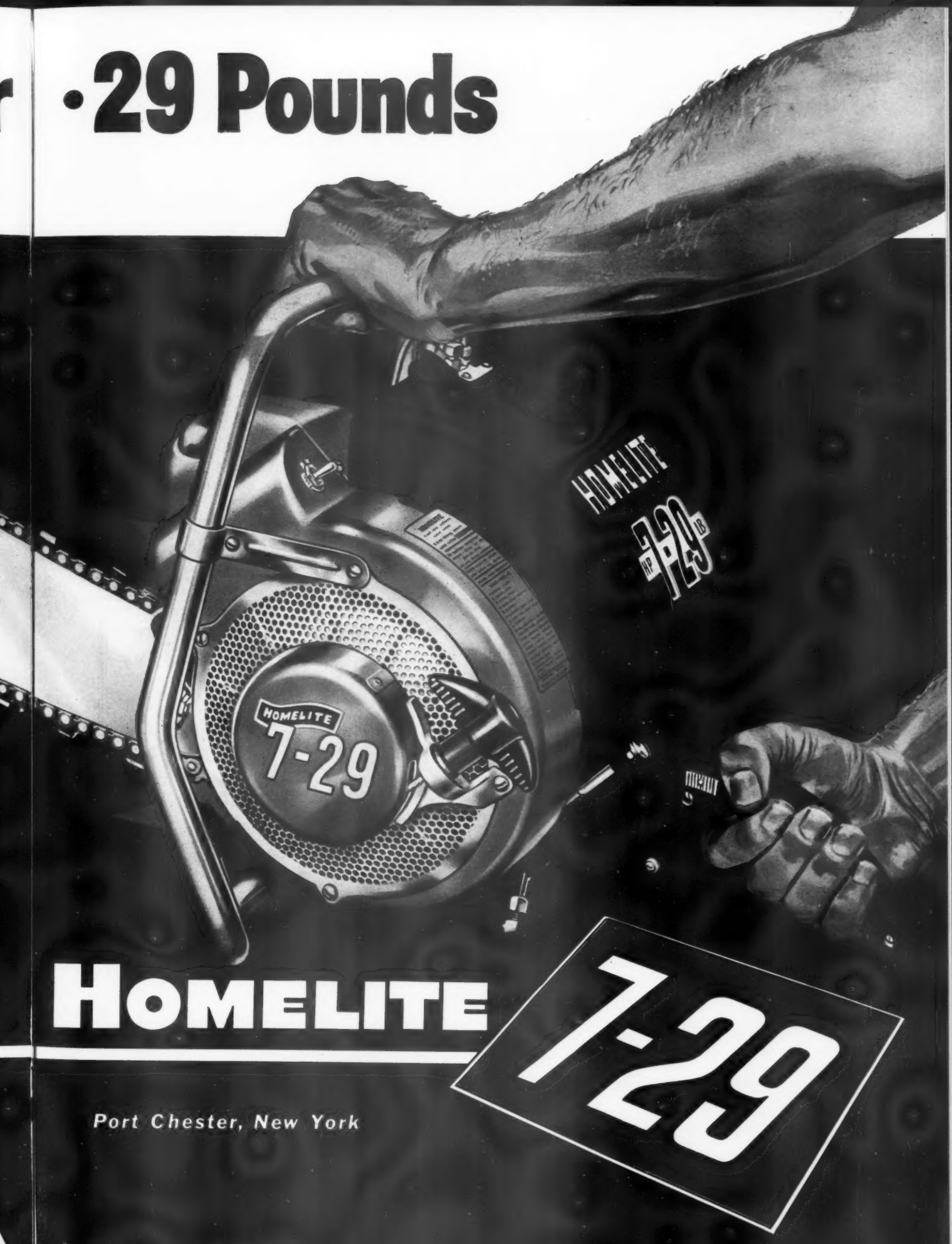
HOMELITE

A DIVISION OF TEXTRON AMERICAN, INC.

806 Riverdale Avenue

MANUFACTURERS OF CARRYABLE CHAIN SAWS · PUMPS · GENERATORS · BLOWERS

·29 Pounds



HOMELITE 7-29

Port Chester, New York

First Nevada National Shade Tree Conference Meeting Called a Success

Sponsored jointly by the University of Nevada and the Western Chapter of the National Shade Tree Conference, the first shade tree meeting of this sort ever to be held in Nevada was held on the Reno campus of the University of Nevada, Saturday, April 21, 1956. Conference chairman was Dr. Robert H. Miller, Biology Dept., University of Nevada.

This meeting was an effort to stimulate a greater interest in the planting and preservation of shade and ornamental trees, both in Nevada and the adjoining states whose climatic and growing conditions in general are similar.

Well-illustrated and informative presentations by eight speakers and the lively discussions that followed each presentation made for a very interesting and educational meeting. The conference program began with an invocation rendered by the Rev. Felix A. Manley, Federated Congregational-Presbyterian Church of Reno, who was followed by addresses of welcome extended by Mayor Len Harris of Reno, and University President Minard W. Stout.

First speaker on the program was Dr. Pierre A. Miller, president of the National Shade Tree Conference and professor of plant pathology at the University of Calif. at Los Angeles whose welcome and greetings from the national headquarters was followed by a talk on "The National Arbor Day Association Program."

The remainder of the morning program included Mr. Allan H. Reid, president of the Western Chapter, National Shade Tree Conference and landscape architect, Palo Alto, Calif., who spoke on "Beauty and Maintenance—Tree Planting to a Plan"; Mr. Ray D. Hartman, president of the Saratoga Horticultural Foundation, Saratoga, Calif., who discussed "Developing New Shade Trees for Streetside Use"; and Mr. Keith L. Davey, president of the Davey Tree Surgery Co., Ltd., San Francisco, Calif., whose topic was "Good Practices and Malpractices in Tree Surgery in Relation to the National Shade Tree Conference Arboricultural Code."

Following luncheon at the University dining hall, and demonstrations put on by various exhibitors at the meeting, the afternoon sessions began with a presentation by Mr. Kenneth Hadland, superintendent of parks at Las Vegas, Nev., on the topic of "Shade Tree Problems of the Arid Southwest." Other afternoon topics included "Trees and the Utilities" by Mr. Jack D. LaBonte, commercial representative of the Pacific Gas and Electric Co., Fresno, Calif.; "Insect Pests of Trees" by Mr. Robert W. Lauderdale, entomologist, University of Nevada Agricultural Extension Service; and "Tree Pests Control Measures" by Mr. Peter C. Ting, entomologist, Pied Piper Pest Control Service, Reno.

The enthusiastic response and interest shown by the members, delegates, and the public-at-large, and the request that similar programs of this nature be held in the future, indicated the success of this initial meeting. Plans are being made to hold such Nevada meetings annually.

President Pete At Nevada

Pierre A. Miller, President of the National Shade Tree Conference delivering address on "Arbor Day" at the first Nevada section meeting of the National Shade Tree Conference. The meeting was held in Reno, April 21st, on the campus of the University of Nevada. Seated L. to R. are: Dr. Robert H. Miller, conference chairman; Mayor Len Harris of Reno; Dr. Minard W. Stout, President of the University, and Rev. Felix A. Manley.

USE BARTLETT SAWS

No. 124B—24" Special Fast Cutting Utility Saw

No. 114B—26" Special Fast Cutting Utility Saw

No. 114—26" Rapid Cut Saw (with Snap if Desired)

No. 44 Pole Saw

No. 414 Meylan Saw

TREE SURGERY SUPPLIES

TRADE MARK REG. U.S. PAT. OFF. COMPOUND

Bartlett Mfg. Co. 2028 E. Grand Blvd Detroit, Mich.

Write now for details and complete catalog. No. 36

TREES MAGAZINE

A Fine Gift All Year 'round

1-Year - - - 2.00 3-Years - - - 5.00

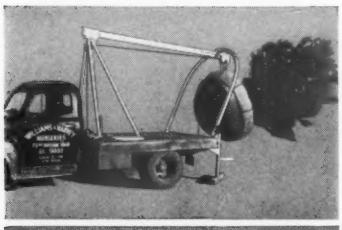
2.50 OUTSIDE U. S.

TREES MAGAZINE —OLMSTED FALLS, OHIO

ODD-I-TREES

DIVIDED OAK OF SPOOKY NOOK
According to the townspeople of Salunga, Penn., this large Red Oak was split many years ago by a bolt of lightning and became two separate trees. They are slowly growing together. The tree strangely is located near a former "haunted house" and some folks claim the spooks of Halloween had something to do with the phenomena.

Contributed by John D. Kendig, Manheim, Penna.



Williams & Harvey Nurseries

BIG TREE MOVER

- New Light Weight
- Simpler to Operate
- Two Sizes, 6′ and 7′
- Quickly Demountable
- Fits Any Standard Truck

Write for specifications and address of users near you. Six-feet mover as pictured: complete with power winch and all needed pick-up parts: F.O.B. Kansas City, Mo.. **$1,675.00**

WILLIAMS & HARVEY NURSERIES

P. O. Box 8822 Kansas City, Mo.

TAKE THE WORD OF LEADING NURSERYMEN WHO KNOW AND CHOOSE HELLER-GRO

The complete plant food made from laboratory quality USP Chemicals

"I now use Heller-Gro in conjunction with about 80 per cent of my foliage spraying" . . . Craig L. Halvorson Tree Service, Pittsfield, Mass.

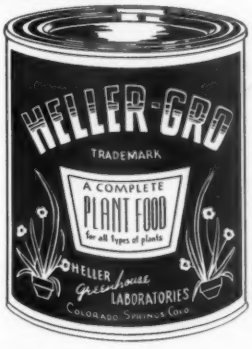
"Heller-Gro will not burn" . . . Karl Amalia, Amalia Tree Surgeons, Inc., Manchester, Mass.

"Heller-Gro has now been fed to all the trees in Audubon Park. including the famous old live oaks" . . . George Douglas, Supt., Audubon Park, New Orleans, La.

Heller-Gro is a concentrated paste plant food that is compatible with all insecticides. It produces sturdy root growth and luxuriant, deep green foliage. It helps you get that "well-fed" look in lawns, trees, flowers and shrubs—helps you restore the vitality that comes only with good plant nutrition.

HELLER-GRO is composed entirely of USP chemicals.
HELLER-GRO dissolves easily and completely; never forms a residue
HELLER-GRO solution will not burn roots or foliage.
HELLER-GRO may be used for root or foliage feeding.
HELLER-GRO is compatible with all insecticides.

Sold in 3¼-oz. tubes, 1-lb. cans, 3-lb. cans, 50-lb. pails



REPRESENTATIVES

NORCO GARDEN PRODUCTS, 95 King St., E., Toronto, Ont., Canada

GORDON H. KNOWLES, 20 St. Albans Ave., Newtown Square, Pa.

WRITE FOR FREE TRIAL SAMPLE

HELLER GREENHOUSE LABORATORIES

218 EAST PIKES PEAK AVE. COLORADO SPRINGS, COLORADO

Tree Rings

(Continued from Page 11)

available to the tree is the determining factor that controls rate of growth. More often than not there are other factors that exert as much or more influence on the tree's growth than does rainfall. For example, some authorities point out that in *Sequoia gigantea,* narrow rings are more likely to indicate cool summers or short growing seasons. Sunshine, drainage, wind, and the length of the growing season are only a few of the growth factors. Damage to the crown of the tree may result in several to many thin rings.

A fine redwood section given to the author by Professor Emanuel Fritz shows close, very thin rings for a large part of its life span and then a sudden change to thick rings, which were formed in every one of the remaining years. This does not mean that the rains came late in the life of this tree and were constant thereafter. Explanation, rather, lies in the fact that at the point of change some adjacent trees were cut down; thereafter sunlight streamed in to increase greatly a rate of growth previously hampered by shade. Such an increase in growth rate is an expected result of thinning out dense forest stands.

Redwood railroad ties with fewer than eight growth rings per inch have been rejected, under specifications used for a long time by the Southern Pacific Railroad, because they would be too soft for suitable service in the track. On the other hand, redwood ring counts ranging up to 60 or 80 per inch are not unknown. An average of a considerable number of redwood ring counts gave the figure of 20 rings per inch. This is an unsafe figure to apply to any particular tree, of course, but it does serve as a convenient rule of thumb by which to compare relative rates of growth.

The rate of growth in *Sequoia gigantea* does not seem to differ widely from its *close relative the* Sequoia sempervirens. Young trees of both species grow very rapidly under favorable conditions and a comparison of some notable ring counts in older trees shows marked similarity. For example, a *gigantea* 22 feet in diameter felled in Sequoia National Park a few years ago had 2,222 rings—an average of about 17 rings per inch. Other examples in both species range both sides of the 20-per-inch rough figure.

How Tree Diameters Can Be Misleading

The surprising facts revealed by tree-ring analysis make it clear that one can go far astray by using the relative diameters of two trees as a measure of their relative ages, even when the trees are of the same species and growing in the same soil. For example, two redwoods, set out side by side by teh author some fourteen years ago, when both had diameters comparable to a lead pencil, came from the same parent tree and had exactly the same care and soil in which to grow. One has now developed into a fine tree more than 15 inches in diameter at one foot above ground; the other measures a scant 4 inches. No one would guess they are the same age, yet core borings from both would show that they have the same number of rings.

It should be remembered, too, that some trees have a "dwarf tendency" even under good growing conditions. Of two ponderosa pine trees taken from the same lot of seed by the Institute of Forest Genetics, planted side by side and given the same treatment for 20 years, one was 20 feet tall and the other 1 foot.

The danger of reaching false conclusions based on relative diameters is brought out convincly by the botanist Willis L. Jepson ("Silva of California," page 58) in a tabulation of data from ring counts he made on the stumps of *Sequoia gigantea* in the Converse Basin. Some examples from his tabulation are as follows:

Tree Number	Diameter	Age
8	11 ft. 7 in. @ 12 ft.	2,017
9	11 ft. 10 in. @ 7 ft.	940
12	15 ft. 4 in. @ 10 ft.	2,177
16	24 ft. 2 in. @ 5 ft.	1,346

We must not be misled into using relative diameters of trees, even of the same species and in the same general area, as any indication of their ages. "Estimates" of age can also be quite misleading. Jepson cites an example of this in an unwise attempt to apply an "average" of 20 rings per inch in estimating the age of a Big Tree: when the "Father of the Forest" was to be cut down, estimates of its age, applying the 20-ring per inch figure, indicated that its diameter of 27 feet inside the bark, should show an age of some 3,240 years. But when an actual ring count on the stump was made it was found that the age was only about 1,300 years (about 8 rings per inch average.)

[To Be Concluded in August Issue]

Utility Tree Program Wins "Oscar"

Mr. Lee C. Howley, Vice-President and General Counsel of the Cleveland Electric Illuminating Co. (left) and Edward H. Scanlon of Edward H. Scanlon & Associates, consulting arborists, admire the Silver Anvil Award for 1955. The Award was made to The Illuminating Company by the American Public Relations Association for the Long Range Community Tree Program inaugurated by Mr. Howley and directed by Mr. Scanlon.

Greatest rate-of-work capacity of any mist sprayer!

the John BEAN ROTOMIST 100-E

delivers **28,000 CFM*** *of air spray at* **400** *lbs. pressure*

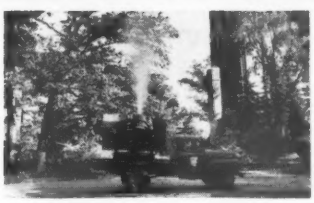
Only the John Bean Rotomist can give you this combination — the drive of straight-through, big volume air flow from an axial flow fan *plus* plunger type pump designed to handle all types of spray materials. You get fast tree-top "reach" and thorough coverage — the capacity that's needed for an effective and economical shade tree protection program. Note these features of the Rotomist 100-E:

- Effortless hydraulic 360° rotation and 110° vertical pivoting
- Oil bath pump with Sapphite lifetime cylinders
- Fully enclosed transmission - mechanical and jet agitation in new "mixing-bowl" shaped tank.

AVAILABLE IN SKID OR TRAILER MOUNTINGS

Both the Model 100-E Rotomist and the economical, medium capacity Model 75-E are available with skids for mounting on a truck bed or as mobile, trailer-mounted units.

MULTI-PURPOSE ROTOMISTS CUT COSTS ON MANY JOBS



SHADE TREE PROTECTION

Rotomist spraying effects savings in time, labor and spray materials that help stretch your budget and make a better program possible.

SANITATION SPRAYING

Fast, effective and economical control of flies and mosquitoes is made possible by Rotomist spraying in recreation areas, dumps, etc.

LEAF WINDROWING

Rotomist's air stream clears leaves from a 30 to 40-foot path and windrows them to greatly reduce the expense of large scale leaf removal.

Please send me

- ☐ New 1956 Rotomist catalog
- ☐ Mist Sprayer Comparison Table
- ☐ Spray Concentration and Gallonage Data
- ☐ Mosquito Control Costs

Name .....

St. or Rt. .....

Town .....

fmc FOOD MACHINERY AND CHEMICAL CORPORATION

® **John BEAN** LANSING 4, MICHIGAN SAN JOSE, CALIFORNIA

Division of Food Machinery and Chemical Corporation

Patronize the Advertisers and mention TREES

Recent recommendations by U.S. Department of Agriculture specialists call for equipment of 25,000 c.f.m. or more for effective Dutch Elm disease control.

PENCO®
AGRICULTURAL CHEMICALS

ASSURE
AN EXCELLENT
SHADE TREE
PEST CONTROL
PROGRAM

DDT Emulsion 34
Lindane E-20
Malathion E-8
Aramite W-15
Toxaphene E-6
and many others

NOW one dependable source for all your spraying needs. You can rely on PENNSALT to give you quality controlled products especially formulated for shade tree work. Make sure that the spray materials you use are tailored to your needs and to each other. Buy the PENCO label . . . your assurance of quality.

PENNSYLVANIA SALT MANUFACTURING COMPANY OF WASHINGTON

Tacoma, Washington
Aurora, Ill. Bryan, Tex.
Berkeley, Calif. Montgomery, Ala.
Portland, Ore. Los Angeles, Calif.

Pennsalt Chemicals

Dutch Elm Disease

(Continued from Page 9)

feeding by elm bark beetles the rest of the season (if necessary under local conditions). Commonly elms become infected with the Dutch elm disease fungus before this date so the spring dormant application (Section II) is much more important. This July spray is *not* a substitute for the spring dormant spray; it is only supplementary to it.

For Hydraulic Sprayers, dilute 2¾ gallons of the *home mixed* 35% DDT emulsifiable concentrate given in Section II per 97¼ gallons of water to make 100 gallons of a 1% emulsion. Some commercial DDT emulsifiable concentrates have been injurious to foliage at this high concentration.

For Mist Blowers, dilute 16 gallons of the same home mixed concentrate per 84 gallons of water to make 100 gallons of 6% DDT emulsion and apply 2 to 5 gallons per medium to large tree. (Some commercial DDT emulsifiable concentrates have been injurious to foliage in these large amounts.)

Don't apply these sprays where they may drift onto food or forage crops. See Sections II and IV for other cautions. Add a miticide and/or aphicide as in Section IV, if needed.

VII. JAPANESE BEETLES

July and August: Spray elms for Japanese Beetles (only where they defoliate elms). Use DDT or methoxychlor sprays used against elm *leaf* beetle grubs in Section IV. Where mites and/or aphids are troublesome, add miticide and or aphicide as also given in Section IV. *Repeat* as needed every two weeks during July and August on species of elm favored by Japanese beetles. See Sections VIII and IX which follow.

VIII. MITES

July and August: Spray elms to combat mites, if present. Mites are usually most troublesome during July and August, especially on elms sprayed regularly with DDT or methoxychlor for a few years.

Use Aramite (Orthomite, Niagaramite, etc.) for mites *or* if both mites and aphids are present use malathion, as given in Section IV. *Repeat* as needed every 3 or 4 weeks. Omit DDT and methoxychlor if defoliating insects are not causing damage.

IX. APHIDS

July and August: Spray elms to combat aphids, if present. Different species of aphids may be present on elms throughout the summer. They are often troublesome during July and August on elms sprayed regularly with DDT or methoxychlor for a few years.

Use nicotine sulphate or malathion as

given in Section IV. *Repeat* as needed every 3 or 4 weeks. Omit DDT and methoxychlor if defoliating insects are not present.

X. ELM LEAF BEETLE GRUBS
(2nd Generation)

About August 1-15 (in parts of eastern Massachusetts only): Spray elms *if* 2nd generation of elm leaf beetle grubs starts to develop.

Use DDT or methoxychlor sprays against elm *leaf* beetle grubs in Section IV.

Where mites and/or aphids are troublesome add miticide and/or aphicide as also given in Section IV.

See Sections VIII and IX above.

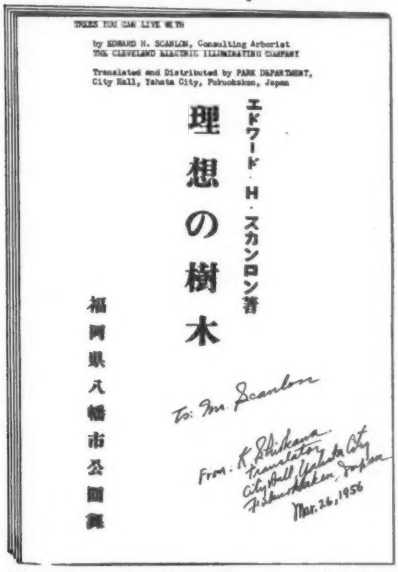
XI. DUTCH ELM DISEASE AND ELM BARK BEETLES

August 15-21: Repeat scouting, pruning and sanitation outlined in Section 7.

XII. DUTCH ELM DISEASE AND ELM BARK BEETLES

September-October: It's time to start with Section I again.

CEI Tree Brochure Trans. Into Japanese


TREES YOU CAN LIVE WITH

by EDWARD H. SCANLON, Consulting Arborist
THE CLEVELAND ELECTRIC ILLUMINATING COMPANY

Translated and Distributed by PARK DEPARTMENT,
City Hall, Yahata City, Fukuokaken, Japan

エドワード・H・スカンロン著

理想の樹木

福岡県八幡市公園課

To: Mr. Scanlon

From: K. Shiokawa
Translator
City Hall, Yahata City
Fukuokaken, Japan
Mar. 26, 1956

The cut above shows the recent brochure "Trees You Can Live With" published by The Cleveland Electric Illuminating Company as it appears in Japanese. A copy of the brochure had been sent to Mr. K. Shiokawa, Secretary to the Mayor of Yahata City, Japan, by Edward H. Scanlon who had become acquainted with Mr. Shiokawa on the occasion of a visit made by the latter to Cleveland in 1948. Mr. Shiokawa asked for permission to translate the brochure into Japanese and distribute it to Japanese cities. The line on the right, reading down, reads "Written by Edward H. Scanlon"; the middle line is "Trees You Can Live With," the third line on the left reads "The Park Department of Yahata City, Fukuokaken, Japan."

NOW...

with
NEW IMPROVED
WILT-PRUF

When sprayed on foliage, WILT-PRUF retards evaporation. Newly transplanted trees and shrubs protected with WILT-PRUF do not suffer damaging moisture loss while becoming adjusted to new locations!

This moisture retention enables nurserymen and propagators to carry on planting operations safely even through summer . . . thereby adding a new profitable season to their business calendars!

Virtually all sizes and varieties of plant material . . . from 40-ft. Pin Oaks to small vegetable seedlings . . . have been moved successfully even in hottest weather when coated with WILT-PRUF!

You owe it to yourself to discover how WILT-PRUF helps boost your profits by ending slack periods, reducing plant loss and cutting replacement expenses!

WILT-PRUF PROTECTS VALUABLE PLANT MATERIAL IN MANY OTHER WAYS. GET ALL THE DETAILS—NOW! FROM YOUR NEAREST WILT-PRUF DISTRIBUTOR OR WRITE TO:

NURSERY SPECIALTY PRODUCTS, INC.
Stebbins Road, Croton Falls, New York

Tilford

(Continued from Page 7)

we must learn to do efficiently and profitably in the future.

Yes, I am sure there will be an expanded need for tree-care service in the future. How well we meet that need depends on us. To meet it satisfactorily it is my opinion, that—1. We should strive to raise the standards in the industry; 2. We must find some way of obtaining and keeping better workmen; 3. We must encourage more research on shade and ornamental tree problems; 4. We must make better use of available tree species and varieties for planting; and 5. We must cooperate with each other on common problems.

Raising Standards

Arboriculture is old, but tree care as it is practiced today is a relatively new profession and we find ourselves in the same predicament of most new professions and trades. We have some of the finest of men in the work, well trained, and who are marketing a real professional service. We have others who aren't so good. We have those who present themselves to the public as tree experts and arborists who actually know very little about the service they are selling. They aren't here today trying to improve themselves. Unfortunately these uninformed and sometimes unscrupulous operators all too often give the industry a black eye.

We have made much progress in raising our standards to a place deserving the respect and confidence of the public. This has been brought about through the efforts of individual tree service companies, the National Shade Tree Conference, the National Arborist Association, and local and state associations and organizations. Some states have laws licensing arborists and in a few other states arborists at this time are attempting to have laws passed. At best laws can only go so far, and, I feel sure that it will be a good many years before laws are in force in most of the states. In the meantime we can do much to raise the standards of our profession by our individual and collective efforts.

Each of us should strive constantly to improve our own service and increase our knowledge of our profession. Improvement starts at home. Let's always talk and behave like arborists in our contacts with the public and always give a good honest service. By so doing we will build reputations in our individual communities which will place arboriculture in the position it rightfully deserves. If each of us has good public relations, there will be no question as to the standing of the profession.

Tree Workmen

Today there is no pool of tree men. We can't advertise for trained men and get them. Individually we must find men who are adaptable to tree work and train them ourselves. Then we must pay them a living wage and in some way keep them.

Research Needed

To continue to improve our tree-care practices more research is needed. In every way possible we should support and encourage our plant pathologists, entomologists, foresters and horticulturists. These scientists are the ones we must look to for help on problems which the practicing arborist cannot solve.

Better Use of Trees

One thing which I believe should be stressed is for more thought to be given to the proper use of tree species and varieties. As our communities become more congested there is a greater need for small to medium-sized trees. There are many fine ornamental trees in this small to medium class and such trees should be more widely used on small lawns, narrow streets, and highways where space is limited and where overhead wires are involved.

Cooperation

In order to develop our industry and do our job effectively it must be properly presented to the public. We cannot do this by presenting negative facts. So much has been said and written about quacks and phony tree experts that the public sometimes becomes a little suspicious of all tree work and of those engaged in it. We should talk more about good tree work, good tree-care practices, and what can be done for the trees.

Use The Best—Be Assured Of Results
—Use Green Thumb Peat—

GREEN THUMB AERATES—HOLDS MOISTURE—AIDS ROOTING

1. 97% pure, organic sedge reed, bacterially high content.
2. One cubic foot makes upward to 50 cu. ft. of good soil, or 15 cubic feet of rich organic soil.
3. Excellent natural nitrogen—readiness to use—going to work at once.
4. Delightful flowing into the soil in handling—uniform structure creates maximum economy.
5. Normal moisture holding, with gradual delivery only to soil and plants assure the maximum in plant development.
6. A product processed, based on 30 years proven continuous operation, has a ph of 4.5 to 5.5, that is quickly, easily and economically adjusted to needs of any plant material.
7. The most efficient and economical soil building nature product in existence.

"Green-Up America With Green Thumb Peat"

PRICES ON TRUCK OR CAR LOADS ON REQUEST

GREEN THUMB PEAT-HUMUS CO.

CAPAC, MICHIGAN

Such a positive approach will build more public confidence in the individual arborist as well as the industry as a whole. The National Arborist Association is promoting a public relations program based on the positive approach. We should believe in our job, be proud of it and speak well of it.

The public is also influenced in its opinion of our profession by the way we speak of competitors. When one of us runs down a competitor it hurts the whole profession. We ought to stick together in-so-far as we possibly can when we face the public. That will help increase the public's respect for us.

One other thought concerning cooperation. There are several different interests involved in arboriculture as represented by commercial arborists, tree wardens, park officials, highway officials, public utilities and, of course, the public. It is a most desirable situation when these various interests work harmoniously together. A good constructive tree program can develop only when all phases are considered and when we pull together as a unit. Tennessee Ernie, in his TV show a few days ago hit this right on the head when he said: "You can sit on the wagon seat all day and holler 'Git up,' but you'll go nowhere 'til you're hitched with a good team."

Conclusion — The American people have a great interest in shade and ornamental trees. They consider trees of sufficient value as to justify the expenditure of a large amount of money for tree-care service.

The job of the arboriculture industry is to provide the best possible tree-care service. There is a great need for our job and the demand will increase in the future. It is an interesting job. We like it and are proud of it.

In order to do this job and to insure that tree preservation in the future will be the best service possible, we should as an industry — strive to improve our standards of workmanship; seek a solution to our manpower problem; encourage and support research; promote the use of better tree species and varieties; and cooperate with others in the field.

Hawthorne Leaf Blight

Hawthorn leaf blight annually causes almost complete defoliation of susceptible plants by the midle of August. Paul's Scarlet hawthorn is especially susceptible. Dr. Forrest Strong recommends using one pint of Puratized Agricultural spray to 100 gallons of water. Make the first application during the first week in July. Follow this with two other applications at 10 to 14 day intervals.

Mich. State Nursery Notes.

"Brush Disposal in 1/3 the time" with FITCHBURG CHIPPERS

Martin J. Kelly, President, Martin J. Kelly, Inc., Tree Expert, Cheshire, Conn. More than 28 years in the tree care business.

FITCHBURG CHIPPERS BELONGING TO MARTIN J. KELLY, INC., Cheshire, Conn., are well known along Connecticut roadways.

Painted bright yellow, and carrying a flashing red light, Kelly's three Fitchburg Chippers are in constant use with a 3 to 5 man crew doing custom line clearance work for utilities and other concerns.

Mr. Kelly has this to say about his Fitchburg Chipper fleet:

"We are operating three of your Fitchburg Chippers and find that the chipping of brush is done in one-third of the time that it would take to pile and burn the brush. It also eliminates the fire hazard of burning and the necessity of covering the burned brush.

The performance of these Chippers is very satisfactory and have given us no trouble.

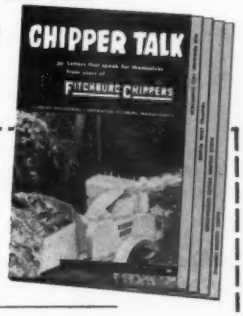
We are writing this note to give you an idea of our experience and to let you know how we appreciate your equipment."

Before you buy chipping equipment for your line clearance operation, get full specifications and compare. Remember, Fitchburg Chippers and *only Fitchburg Chippers* have the patented spring-activated feed plate that provides extra safety in operation and assures ease in chipping all wood sizes to the machine's rated capacity.

Only Fitchburg Chippers have the hinged feed apron that can be closed when the Chipper is not in operation. *Only Fitchburg Chippers* give you a written ONE YEAR GUARANTEE. So get all the facts before you buy. Mail the coupon now for your free copy of the new Fitchburg portfolio "Chipper Talk"—chock full of pictures, diagrams, and data.

Free Portfolio-"CHIPPER TALK"

Complete cutaway color drawings of Fitchburg Chipper in action. Specifications. Photo copies of letters from municipalities, commissions, counties, contractors, tree care men.



FITCHBURG ENGINEERING CORPORATION
Fitchburg, Massachusetts, Dept. T-66
Send my free copy of "Chipper Talk" to:
Name_____ Position_____
Company_____
Address_____
City or town_____ State_____

Authors and Books

The following books may be ordered from TREES Magazine, 7621 Lewis Road, Olmsted, Falls, Ohio.

THE GARDENER'S BUG BOOK, by Cynthia Westcott. Doubleday & Co., Inc., Garden City, N. Y. 579 pgs. illus. $7.50.

Do you have brown patches in your lawn? Is your foundation planting grayish? Has your elm lost its leaves? Are there beetles on the roses, bugs on the nasturtiums? Are your apples wormy, your squash vines wilting, your broccoli full of lice? You're a rare gardener, indeed, if you don't have dozens of such problems. *The Gardener's Bug Book* helps you to diagnose the cause and to work out the solution.

Here is information, scientifically accurate but in easy-to-read, non-scientific language, on about 1100 insects, mites, and other animal pests that commonly attack trees, shrubs, vines, lawns, flowers, fruits, and vegetables in home gardens. Illustrations in full color, prepared by Eva Melady in cooperation with Rutgers University, give life histories of more than 100 of these pests and show their effect on the plants. Control measures combine the latest in chemical developments with time-honored cultural measures.

Are you an agricultural chemist, arborist, county agent, florist, garden editor, landscape architect, librarian, nurseryman, or seedsman serving the general public? Here is a manual to keep by your telephone arranged for speedy, finger-tip reference. Are you a truck farmer or fruit grower? Here is help to supplement the spray schedules and bulletins provided by your state experiment station. Do you teach agriculture, arboriculture, biology, entomology, general science, olericulture, ornamental horticulture or pomology? Here is concise reference material for your students.

Chapter I briefly summarizes the importance of insects to modern gardeners, Chapter II includes a dictionary of pesticides, Chapter III tells how to apply these, and Chapter IV tells how insects are formed and classified. Chapter V, the major portion of the book, gives descriptions, life histories, and control measures for the individual pests, which are treated in alphabetical order, according to their common names. Chapter VI provides a check list of the more important pests occurring on about 500 host plants.

THE CARE ASD FEEDING OF GARDEN PLANTS. Published by The National Fertilizer Co., Washington, D. C. 16 authors of various chapters. 184 pgs. $3.00.

Some good but much misinformation is dispensed in this book. The chapter on "Trees for the Home Grounds" is badly mixed up. Trying to "crush" borers by inserting a wire in the hole is a good trick if there is only one borer to fight. There are several better way to combat this insect. The recommended practice for "curing" slime flux sounds easy. Actually it is a vexing problem calling for the attention of a skilled arborist and even he will have a real job on his hands. The tree list under "Less Desirable but Satisfactory Medium-Tall Trees For Street and Yard" is badly mixed up. In this list are such far-apart species as American Elm, Honey Locust and Goldenrain and Littleleaf Linden. How the latter two can be classed as "less satisfactory" than Pin Oak or London Plane is beyond comprehension. Then Acer campestre, Acer griseum, Magnolia Kobus, Ostrya virginiana, Cornus Kousa and several other equally superb small trees are listed as "less desirable" than Betula populifolia, Acer ginnala, Chionanthus virginicus. These lists should have been omitted entirely. Generally a rather confusing book that does little but advocate the use of fertilizers.

Verticillium

In recent years *a number of new hosts of Verticillium have been reported,* but most frequently infected were oak, elm and maple. Not too long ago a tulip tree (Liriodendron tulipifera) in Milford, Conn., showed symptoms. The typical greenish streaks in the wood of branches were present. Culturing verified the presence of the fungus. This is the first record of Verticillium in tulip. In Cleveland, Ohio, Ailanthus has been hard hit.

Nevada Arborist Displays

Kenneth Gordon, Tip Top Tree Trimmers, of Las Vegas, Nevada had this display at a recent Flower show in that city. The two young charmers are: left, Marian and Jerry Gordon.

NEW PRECISION SHARPENER

SAVES
You Time
And Money

FORESTER PRECISION SAW CHAIN SHARPENER

- Chains Cut Better Than New
- Saves In Replacement Cost
- Saves In Sharpening Cost
- Saves In Labor Cost

Sharpens every cutter to a razor sharp, mirror finish with exactly the same horizontal and vertical angles. Chains last 3 to 5 times longer because precision sharpening removes less metal. Diamond hard carbide burrs will outlast files 15 to 1 and can be resharpened several times so that they are as good as new.

WRITE FOR INFORMATION AND PRICES

FORESTER MANUFACTURING COMPANY
10 McCue Avenue, Lockport, N. Y.

The Hallmark of Distinction In Street Tree Selection and Use

IS THIS TAG ATTACHED TO YOUR STREET TREES

The use of Tailored Trees is indicative of judgment in evaluating management problems, and of imagination in solving them.

The leaders in the field of Street Tree Management have turned to the wide selection of "Tailored Trees" as the answer to vexing street tree problems. You should join this rapidly increasing list of municipal tree users and bring beauty and function to the streets of your city with "Tailored Trees"

NOW

A "Tailored Tree" To Fit Any Combination of Site Factors

GLOBES – COLUMNS – PYRAMIDS – FASTIGIATES – FLOWERING – FOLIAGE . . . Small and Medium Conventional Forms

SPECIALISTS IN THE GROWING OF TREES ONLY

WRITE FOR FALL CATALOG

Edward H. Scanlon & Associates

"The Tailored Tree Nursery"

Phone: ADams 5-2357

7621 Lewis Rd. Olmsted Falls, Ohio

RETURN POSTAGE GUARANTEED
Trees Magazine, 7621 Lewis Rd.
Olmsted Falls, Ohio

Postmaster: If addressee has moved and new address is known, notify sender on Form 3547, postage for which is guaranteed.

Sec. 34.66 P.L.&R.
U. S. POSTAGE
PAID
Olmsted Falls, Ohio
Permit No. 12

NEVER A PROBLEM WHEN YOU HAVE AN ASPLUNDH CHIPPER

BECAUSE chipping completely eliminates the problem of burning, it is the *modern* approach to brush disposal.

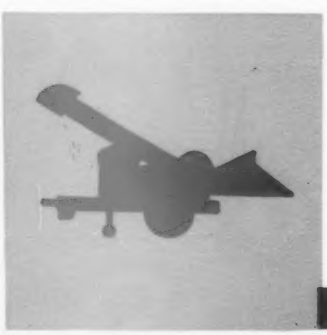
Now you chip brush right on location—letting the chips fall to the ground. Should hauling be desirable, it is far less costly to haul chips than brush, *for 1 truck-load of chips equals at least 4 of brush—a 75% saving in labor costs.* You will also find nurserymen and many farmers a ready market for wood chips.

WHY ASPLUNDH? Because only Asplundh is *made by tree men for tree men.* Only Asplundh is engineered, developed and *proven by the largest tree company in the world.*

Asplundh is the safest, fastest, most economical chipper you can buy.

There are many time and cost-saving advantages that are yours when you use an Asplundh Chipper. Let us send you the *complete* story. Clip and mail this coupon TODAY.

Better still—ask for a FREE demonstration. Completely without obligation to you.



ASPLUNDH CHIPPER COMPANY Dept. T-3
505 York Road, Jenkintown, Pa.

☐ Send FREE BOOKLET, *"The Modern Approach to the Brush Problem".*
☐ Arrange free demonstration.

NAME_____
ADDRESS_____
CITY_____ ZONE____ STATE_____

BY ACTUAL TEST THE FASTEST CHIPPER MADE